

**WETLAND AVIFAUNAL DIVERSITY, POPULATION STATUS AND
CONSERVATION THREATS IN PHEWA LAKE
POKHARA, NEPAL**

A thesis submitted for the partial fulfillment of the requirements
for the **Master's Degree in Zoology (Ecology)**

By

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Submitted to

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RECOMMENDATION

It is my pleasure to mention that **Mr. Bikas Giri** has successfully completed the dissertation work entitled “WETLAND ANIFAUNAL DIVERSITY, POPULATION AND CONSERVATION THREATS IN PHEWA LAKE, POKHARA, NEPAL” under my supervision and guidance. This is the candidate’s original work and to the best of my knowledge this dissertation has not been submitted for any other degree. I recommend that the dissertation be accepted for partial fulfillment of the requirement for the Master’s Degree in Zoology (Ecology).

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APPROVAL

On the recommendation of Supervisor Dr. Mukesh Kumar Chalise, Associate Professor, Central Department of Zoology, Tribhuvan University, the dissertation work entitled “WETLAND AVIFAUNAL DIVERSITY, POPULATION STATUS AND CONSERVATION THREATS IN PHEWA LAKE, POKHARA, NEPAL” submitted by **Mr. Bikas Giri** has been approved for the partial fulfillment of the Master’s Degree in Zoology with Ecology as special paper.

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ACCEPTANCE

The dissertation work entitled “WETLAND ANIFAUNAL DIVERSITY, POPULATION STATUS AND CONSERVAION THREATS IN PHEWA LAKE, POKHARA, NEPAL” submitted by **Mr. Bikas Giri** has been accepted for the partial fulfillment of the requirement of Master’s Degree of Science in Zoology with Ecology as special paper.

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DECLARATION

I have declare that the work presented in this dissertation entitled “WETLAND AVIFAUNAL DIVERSITY, POPULATION STATUS AND CONSREVATION THREATS IN PHEWA LAKE, POKHARA, NEPAL” has been done by myself and has not been submitted elsewhere for the award of any degree. All sources of information have been specially acknowledged by reference to authors or institution.

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ABSTRACT

The present study entitled “WETLAND AVIFAUNAL DIVERSITY, POPULATION STATUS AND CONSERVATION THREATS IN PHEWA LAKE, POKHARA, NEPAL” was carried out during the period of June 2007 to February 2008. The area covered by the study site was 8.5 sq. km. The direct count method using vantage points (n=10) was followed for the collection of field data. The secondary informations were collected by questionnaire and literature citations. During the study, a total of 39 species of waterbirds belonging to 17 families and 5 orders was recorded. Out of the 39 species, 10 species were resident, 15 species were winter visitors, 10 species were occasional visitor and 4 species were rare winter visitor. The highest number of the birds was found in January (1584) and second largest population was in December (1472 individuals). September had the less population of the water birds (345 individuals). The months from June to November was dominated by Cattle Egret. But in the months of December, January and February, Common Coot had the highest population. The diversity was found highest ($\bar{H} = 2.6228$, $e = 0.8485$) in February and lowest ($\bar{H} = 1.2014$, $e = 0.4555$) in June. The dominance of individual species was highest in June ($C = 0.5058$) and lowest in February ($C = 0.1020$). There was positive correlation ($r = + 0.3636$) between number of cattle and birds. But this relationship was not statistically significant ($t = 1.1086$, $p < 0.05$, $df = 7$). There was prevalence of seasonality in species richness ($t^2 = 29.34$, $p < 0.05$, $df = 8$). But the number of individuals of the waterbird species were found unaffected by the seasons (months) ($F = 1.71$, $p < 0.05$, $df = 8,342$). The bird communities were more similar ($S = 0.7059$) between the summer and autumn than between summer and winter seasons ($S = 0.5000$). Major conservation threats found were solid waste, thriving of water hyacinth, agricultural seepage, hunting birds and collecting eggs, unmanaged tourism and tourist activities, grazing, increasing urbanization, siltation, etc. The efforts to promote sustainable use of Phewa Lake, well managed tourism, minimization of dependency on wetland, discouraging of the nutrient increasing factors in lake, ownership feeling of local people can establish this wetland as an important site for wetland avifauna and other large numbers of species. Removal of Water hyacinth *Eichhornia crecippes* annually is being helpful for conservation of Phewa Lake via pollution control but scientific measures for the maintenance of the level should be sought.

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ACRONYMS AND ABBREVIATIONS

C-	Degree Centigrade
%-	Percentage
am-	Ante Meridian
B.S.-	Bikram Sambat
BCF-	Bharandabhar Corridor Forest
BCN-	Bird Conservation Nepal
BLI-	Birdlife International
DNPWC-	Department of National Parks and Wildlife Conservation
DO-	Dissolved Oxygen
DOAD-	Department of Agricultural Development
DSCWM-	Department of Soil Conservation and Watershed Management
ed(s)-	Editor(s)
Fig.-	Figure
gm-	Gram
GoN-	Government of Nepal
ha.-	Hectare
ICIMOD-	International Center for Integrated Mountain Development
IUCN-	International Union for Conservation of Nature/ The World Conservation Union
lit-	Liter
max.-	Maximum
MFSC-	Ministry of Forests and Soil Conservation
min.-	Minumum
NARC-FRCP-	Nepal Agriculture Research Council-Fishery Research Center Pokhara
NWP-	National Wetland Policy
pm-	Post Meridian

RH- Relative Humidity
RSPB- Royal Society for Protection of Bird
U.S.EPA- United State-Environment Protection Agency
VDC- Village Development Committee
WECS- Water and Energy Commission Secretariat
WWF- World Wildlife Fund